

CLAIMS

214/297.1
What is claimed is:

1. A method for forming a plurality of composite parts via resin transfer molding in a single molding cycle, the method comprising the steps of:

providing a mold having first and second mold members that cooperate to define a mold cavity;

providing a plurality of shims;

loading a plurality of preform workpieces into the mold cavity such that at least one of the shims is disposed between each of an adjacent pair of the preform workpieces;

injecting a liquid resin into the mold cavity;

curing the liquid resin to thereby form a cured workpiece matrix that is composed of a plurality of semi-finished composite parts and the at least one shim; and

separating the plurality of semi-finished composite parts and at least one shim from one another.

2. The method of Claim 1, wherein the step of separating comprises the step of trimming the sides of the cured workpiece matrix such that none of the semi-finished composite parts are bonded to one another.

3. The method of Claim 1, wherein a quantity of the preform workpieces that are loaded into the mold cavity is related to a predetermined thickness tolerance for the composite parts.

4. The method of Claim 3, wherein the quantity of the preform workpieces that are loaded into the mold cavity is further related to a predetermined mold cavity tolerance.

5. The method of Claim 4, wherein the quantity (Q) of the preform workpieces that are loaded into the mold cavity, the thickness tolerance (TT) for the composite parts and the mold cavity tolerance (MCT) are related by the equation $Q \geq (MCT \div TT)$.

6. The method of Claim 1, wherein each of the composite parts is a substantially flat panel.

7. The method of Claim 1, further comprising the step of processing the semi-finished composite parts through at least one machining operation to form a plurality of finished composite parts.

8. The method of Claim 7, wherein the at least one machining operation includes a trimming operation wherein the semi-finished composite parts are trimmed to a predetermined size.

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9. A mold apparatus for performing a resin transfer molding operation on a plurality of preform workpieces to substantially simultaneously mold a plurality of semi-finished composite parts in a single molding cycle, the mold apparatus comprising:

a first mold member defining a first mold line;

a second mold member defining a second mold line, the second mold member cooperating with the first mold member to define a mold cavity that is bounded by the first and second mold lines; and

at least one shim that is sized to fit within the mold cavity, each of the shims being configured to be spaced in relation to the first and second mold lines to thereby segregate the mold cavity into a plurality of sub-cavities, each of the sub-cavities being configured to house one of the preform workpieces.

10. The mold apparatus of Claim 9, wherein the at least one shim is oriented substantially parallel to at least a portion of each of the first and second mold lines.